MAR 21 1930

The JOURNAL of GEOGRAPHY

VOLUME XXIX MARCH - 1930 NUMBER 3

In This Issue

A Study of the Succession of Human Activities in the Kentucky Mountains . . . *D. H. Davis*

Elective Course in Senior High School Geography . . . . . *National Council Committee*

Sovereignty in Antarctica . . *Laura H. Martin*

Distribution of Irrigated Areas with Special Reference to Europe . . . . . *W. O. Blanchard*

Editorial Notes and News . . . . . .

Geographical Publications . . . . . .

Interest-Stimulating Device . . . . . .

Published by A. J. NYSTROM & Co., for THE NATIONAL COUNCIL OF GEOGRAPHY TEACHERS
GEORGE J. MILLER, *Editor*

The JOURNAL *of* GEOGRAPHY

A MAGAZINE FOR SCHOOLS

GEORGE J. MILLER, *Editor*
CORA P. SLETTEN, *Assistant Editor*
State Teachers College, Mankato, Minn.

Associate Editors

R. H. WHITBECK, University of Wisconsin, Madison
R. M. BROWN, Rhode Island College of Education, Providence
E. E. LACKEY, University of Nebraska, Lincoln
ERNA GRASSMUCK, State Teachers College, Indiana, Pa.
A. E. PARKINS, George Peabody College for Teachers, Nashville, Tennessee
D. C. RIDGLEY, Clark University, Worcester, Mass.

SUBSCRIPTION TERMS

The subscription price is $2.50 a year, payable in advance. The price of single copies is 35 cents. Postage is prepaid on subscriptions from the United States, Canal Zone, Republic of Panama, Porto Rico, Cuba, Virgin Islands of the United States, Dominican Republic, Philippines, Guam, Samoan Islands, Hawaii, Mexico, Costa Rica, Guatemala, Nicaragua, Republic of Honduras, Salvador, Argentina, Bolivia, Brazil, Colombia, Ecuador, Paraguay, Peru, Uraguay, Spain and Spanish Colonies. Postage is charged extra for Canada and all other countries in the Postal Union as follows: 27 cents on annual subscriptions (total $2.77), on single copies 3 cents (total 38 cents).

The Journal is the official organ of the National Council of Geography Teachers and is sent to all members of the organization. The annual dues, $2.00, are payable to the *Journal of Geography*. Extra postage rates for copies sent to foreign countries should be added to the membership dues.

Patrons are requested to make all remittances payable to the *Journal of Geography*, in postal or express money orders or bank drafts.

Members and subscribers who wish to continue receiving the *Journal* must send remittances promptly to assure the volume being complete.

Send manuscript and books for notice or review to the *Editor*.
Send orders for back numbers to *Journal of Geography*.

Published monthly except June, July and August

PUBLICATION OFFICES: 450-454 AHNAIP STREET, MENASHA, WISCONSIN

Business Correspondence, Membership Dues, and Subscriptions may be sent to Publication office or to

A. J. NYSTROM AND COMPANY
PUBLISHERS, JOURNAL OF GEOGRAPHY
3333 ELSTON AVENUE, CHICAGO

Entered as second-class matter January 15, 1919, at the postoffice of Menasha, Wisconsin, under the Act of March 3, 1879.

THE JOURNAL OF GEOGRAPHY

CONTENTS FOR MARCH, 1930

A Study of the Succession of Human Activities in the Kentucky Mountains. By D. H. Davis 85

Dr. Davis is head of the department of geography, University of Minnesota, and Secretary of the Association of American Geographers. The article presented here is the result of extensive field studies in the Kentucky Mountains, which have given Dr. Davis a thoro knowledge and sympathetic understanding of the mountain people and the significant changes that have already taken place. It is the third in our series of experimental writings in human geography. Other articles by Dr. Davis will be found in the JOURNAL, February, 1925, p. 41; April, 1926, p. 121.

Elective Course in Senior High School Geography 101

Dr. Parkins, Chairman of the High School Committee of the National Council, presents here the report approved at the Columbus meeting of the National Council in December, 1929.

Sovereignty in Antarctica. By Laura H. Martin 112

Dr. Martin was formerly an instructor in geography and geology in Wellesley, Barnard, and Smith colleges, and an assistant professor in the Institute of Politics at Williamstown, Massachusetts. Her other publications include papers in the bulletins of the Connecticut Geological and Natural History Survey, and "A League of Nations Map." "Sovereignty in Antarctica" is a revision of a paper that appeared in the *New York Times* and the material is used again by permission.

Distribution of Irrigated Areas with Special Reference to Europe. By W. O. Blanchard 121

Dr. Blanchard is an associate professor of geography in the University of Illinois and a frequent contributor to the JOURNAL, among which are Italy and the Adriatic; Trade Routes of Bolivia; and The Cork Oak. He is author of a laboratory manual, Exercises and Problems in Elementary Economic Geography, published recently.

Editorial Notes and News 129

Geographical Publications 132

Interest-Stimulating Device 133

Contents of the JOURNAL are indexed regularly in the *Education Index*.

Authors alone are responsible for opinions and statements in the JOURNAL.

Whitbeck's

Industrial Geography

Production — Manufacture — Commerce

By RAY HUGHES WHITBECK
Professor of Geography, University of Wisconsin

Cloth, 608 pages, with maps, diagrams, charts, and illustrations. $1.72

IMPORTANT facts of commercial geography presented in a way to hold the interest of boys and girls of high school age.

Its easy, narrative style, its profuse illustrations and its emphasis on the essentials make it an unusually teachable book.

AMERICAN BOOK COMPANY

New York Cincinnati Chicago Boston Atlanta

The JOURNAL *of* GEOGRAPHY

Copyright, 1930, The Journal of Geography

VOLUME XXIX MARCH, 1930 NUMBER 3

A STUDY OF THE SUCCESSION OF HUMAN ACTIVITIES IN THE KENTUCKY MOUNTAINS, A DISSECTED HIGHLAND AREA

D. H. DAVIS
University of Minnesota

THE PRE-HISTORIC PERIOD

Man has occupied the dissected highlands of eastern Kentucky since pre-historic time. In the many caves formed by overhanging layers of harder rock early man had his home, for embedded in the floors of such caves are found evidences of his occupancy. From these kitchen midden we know that pre-historic man lived by the chase, that his clothing was fashioned of skins, his food supplied by animals, tho he varied his diet to some extent with wild berries and fruits. His numbers must have been small, as he depended upon his immediate environment to supply all his wants and his methods of obtaining a living would not have admitted a dense population. To only a limited extent did he modify the conditions of the area in which he made his home by restricting the numbers of such animals as furnished him with food and clothing.

THE PERIOD OF INDIAN OCCUPANCY

Thus, with the arrival of the period of Indian occupancy, the environment had undergone but slight alteration. The hills were still densely forested and fish and game were abundant; the streams flowed clear between heavily wooded banks. During this period, immediately prior to white settlement, hunters, both red and white, visited the region and Indian war parties crossed it, but of permanent occupation, there was none. The region's function as a buffer area between hostile tribes caused it to escape the modification imposed by Indian occupation in other portions of the United States, so that it remained in a virtually virgin condition. The dissected plateau which we today know as the Kentucky Mountains, was, up to the last quarter of the 18th century, without permanent inhabitants and essentially unaltered by man and his activities.

THE WESTWARD MOVEMENT OF WHITE POPULATION

Prior to 1760, English settlement was confined largely to the Tidewater, the Piedmont and limited portions of the Great Valley. The Appalachians at that period were still a barrier to travel and and a protection from marauding Indians from the west. As soon as population began to press into the area to the west, however, every stream which broke thru the barrier became an Indian war path and forts and stockades sprang into existence to check the raids of the hostile Indian tribes. These fortified sites later served as points of departure for migration still farther to the west.

FIG. 1. A cave or "rock house" on the flanks of Pine Mountain. Such caves were used by pre-historic man as habitations; today they find occasional use as stables for stock.

In this migration, the various ethnic elements, Dutch, German, Huguenot, French, Scotch Irish, and English were merged in a new type of American — the backwoodsman. The forest frontier produced this new type as a result of the mingling racial strains and the pressure of the new environment with its altered demands. When movement still farther west occurred, the type necessary to cope successfully with the wilderness had evolved and the bases from which advance could occur had been established.

As a result of conditions to the north and south, resulting from the resistance of powerful, hostile Indian tribes to the south and

from treaty agreements with the Iroquois to the north, the only settlements participating in the early westward movements were Pennsylvania, Maryland, Virginia, and North Carolina. Thru the parallel valleys of the Appalachians and the gaps in the east-fronting escarpment of the Plateau, settlers moved into the Kentucky Mountains, both by way of the Ohio River and thru Cumberland Gap.

The latter of these two routes was much nearer for emigrants from the southern colonies and was also much used by those emigrants of northern origin, as the more northerly route down the Ohio River was exposed to constant and imminent danger of Indian attack until late in the 18th century. From Fort Chissel, on the Holsten, the Wilderness Road led to the west to Cumberland Gap and thence westward by alternative routes across the Kentucky Mountains to the fertile plains of the Blue Grass and the Nashville Basin. The courses of these alternative routes were determined by topographic conditions and the routes followed either Indian trails or buffalo traces, which ran from salt lick to salt lick. Cumberland Gap thus became a focal point for highways to the west.

At first only blazed trails guided the pioneers thru the wilderness, later to be succeeded by "traces" of the earlier arrivals with their packhorses. These were at all times impassable for wagons, and even up to very recently, the roads have been but slightly better. The existence of these conditions for so long a period is probably responsible for the belief that such conditions still persist and for such statements as "made roads there are none; nothing has been done since the days of Daniel Boone . . . .," which still occur in articles of very recent date.

The early emigrants encountered many hardships. They had to ford streams and to traverse steep slopes thru heavy timber. For food they depended on game or the cattle which they drove with them. The peril of Indian attack was always present and sometimes realized, tho not so frequently as on the more northern route down the Ohio River. Thru the heart of the Kentucky Mountains ran the "Warriors Path," a war trail between the Cherokee villages to the south in Tennessee and the Shawnee settlements at the junction of the Scioto and the Ohio. This trail crossed the headwaters of both the Kentucky and Licking rivers and was followed by the Wilderness Road as traveled by Boone in 1775 from the point where the Cumberland River cuts thru Pine Mountain downstream

to Flat Lick, from which point an old buffalo trace was followed to the Rockcastle River.

Despite the hardships and frequent dangers attendant on this Trans-Appalachian movement, the attractiveness of the region and the hope of opportunity drew the land-hungry emigrants in almost unbelievable numbers. This movement of population constitutes one of the major migrations of population in the history of the United States and is particularly remarkable when the difficulties and dangers of the journey are taken into consideration.

Many of the emigrants were so attracted by the opportunities of the Mountains that they abandoned the idea of pushing on to the west. To the frontiersman, the area was not unattractive, as the hills were forested and furnished fuel and building material, the forests abounded in game, and the streams were well stocked with fish. Along the larger rivers, considerable tracts of level land afforded opportunity for growing corn, the staple food and chief dependence in pioneer agriculture. From the standpoint of the backwoodsman, these assets rendered the Mountains desirable as a home.

The early settlers in the mountains were virtually all of American birth and American parentage. The racial stock is in all probability the same as that of the Blue Grass, tho it has been modified in important characteristics by long isolation under living conditions differing from those of the plains to the west. Isolation and freedom from admixture by more recent immigration, together with intermarriage, have produced a population of extraordinary homogeneity. Even the physical characters are common; the average mountaineer is lean and lank, with rather high cheek bones.

The mountain environment has left its impress as well on the nature and the mental processes of the mountaineers. The self reliance made necessary by isolation has developed a degree of independence which manifests itself in a disregard of laws framed to meet the necessities of other areas, notably the revenue laws, as well as a disposition to right wrongs without recourse to the processes of law. Conditions under which the mountaineers have lived have made them almost unaware of the value of time and the binding character of a contract which they do not find it convenient to fulfill. As in other isolated, purely agricultural communities, strangers still excite curiosity. Personal and family honor are regarded highly and honesty is so prevalent that it is a regional

FIG 2A

0 1 2 3 4 5 MILES

CONTOUR INTERVAL 100 FEET

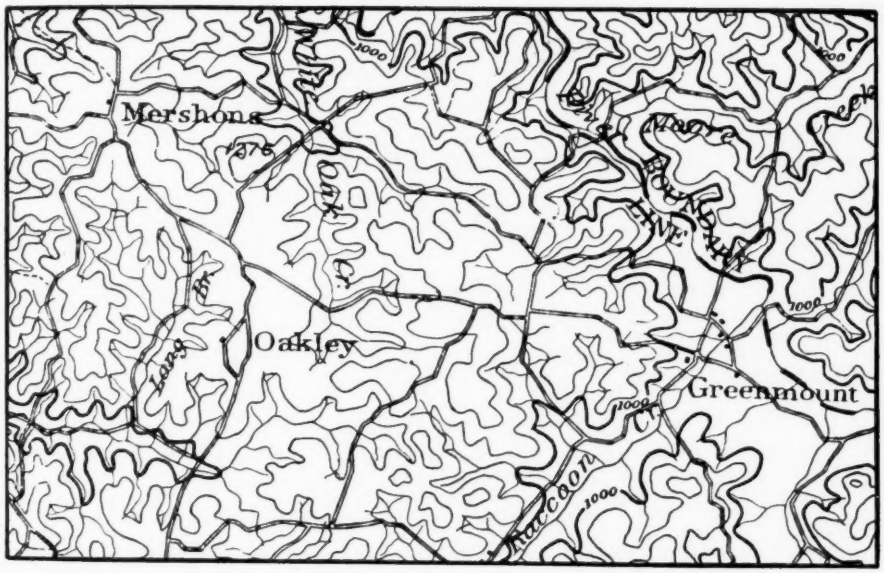


FIG 2B

FIG. 2. A. Typical topography of the area of creek-bottom settlement. In this portion of the Mountains, the ridges are narrow, forested and unoccupied. The farms are on the creek "bottoms" and the roads follow the creeks. (After Salyersville Quadrangle, U.S.G.S.) B. Typical topography of the area of ridge-top settlement. The ridge tops are wide and the valleys are V-shaped. Farms and roads are confined to the ridge tops. (After London Quadrangle, U.S.G.S.)

characteristic. These are some of the picturesque characteristics of the population which lend to possibilities for exaggeration in the fields of both "fact and fiction."

DEVELOPMENT DURING THE PERIOD OF ISOLATION

After the first movement into and thru the area had spent its force, the region was left to one side by the development and use of

FIG. 3. House and homestead, including family burying ground. A common type of log house and a characteristic scene at the head of the smaller creeks. Messer Branch, near Hazard, Perry County.

better highways to the west by more northern routes and so left to work out its own destiny. For nearly one hundred years the mountaineers were immured in the Mountains, shut in on the east by the Pine and Cumberland Mountain barrier and separated from the Blue Grass to the west by the frowning escarpment of the Basal Coal Measure Conglomerate. Amid their mountain surroundings the mountain people multiplied in numbers, meanwhile wringing a bare existence from the narrow bottoms and the unfriendly slopes. Cut off from the outside world, change penetrated the Mountains slowly or not at all, so that the group adhered to pioneer crops, pioneer agricultural practices, pioneer standards of living and per-

petuated the customs and expressions of a bygone day long after they had disappeared elsewhere. Up to 1890, it was proper to say that our "contemporaneous ancestors" lived in the Kentucky Mountains. It was true a few decades ago that the Mountains were a "Backwoods where the civilization is that of the 18th century—where money is as scarce as in colonial days and all trade is by barter." As late as 1878, Shaler of the Kentucky State Geological Sur-

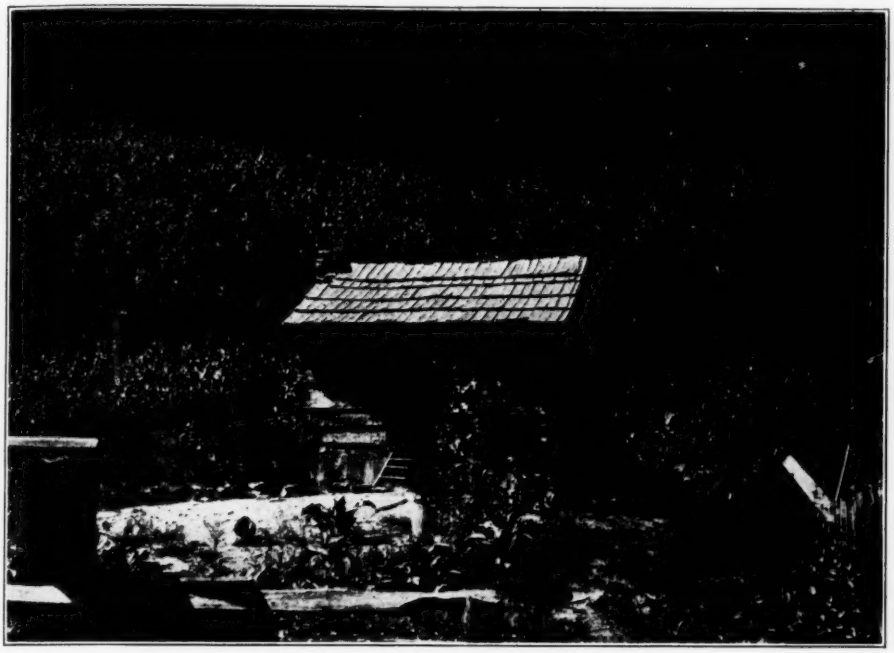


FIG. 4. Single room log house, with steep slope in rear under cultivation. "Bee gum" in foreground. Quicksand Creek, Breathitt County.

vey saw men hunting squirrels with the old English "short bow," but these conditions are of the past, not the present.

The early pioneer was thrown entirely on his own resources, and forced to depend upon the immediate environment for all he needed. For his house, he used roughly squared and fitted logs, with chimney and fireplace of sandstone slabs, often laid with mud instead of mortar. Roofs were of hand split shingles or "boards." In many cases windows were lacking, or if present, were both few in number and small, ample ventilation being secured thru the chinks between the logs of which the house was constructed. Sometimes the house was a small single-roomed structure; again it was a two-cabin build-

ing with a roof bridging the floored space between the two cabins and covering the porch which extended the entire length of the structure. Outbuildings were either lacking or few in number and of log construction like the house. In an area of relatively mild, short winters, such as the Mountains, hay and stock barns were unnecessary. Further, there was little stock. The pioneer crop—

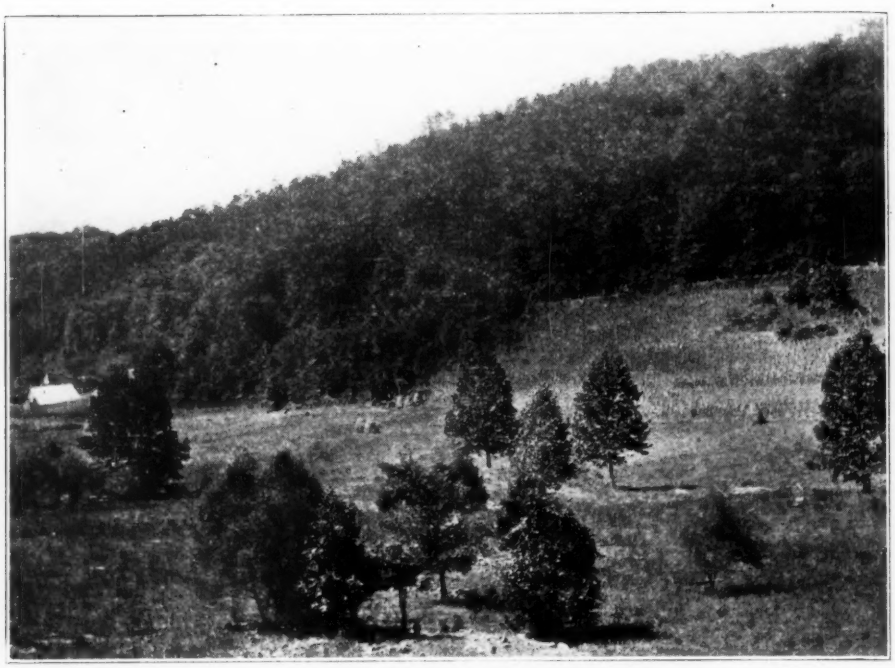


FIG. 5. A characteristic landscape in the area of creek bottom settlement. The slopes are still timbered and the road parallels the creek. Valley of Greasy Creek, near Pine Mountain Settlement School, Harlan County.

corn—required little storage space and might even be left in the field until used.

For fuel, the pioneer depended on wood, tho an abundant supply of high grade coal was available at shallow depths. Water was commonly secured from springs or shallow dug wells. Household utensils were few in number and limited to a frying pan, an iron pot, a bucket, a coffee pot and a few tins, supplemented by gourds of various sizes and shapes. The hominy mill and the hand mill were in common use in every pioneer household in the preparation of corn for use in the home. Furniture was largely of home manufacture and the workmanship was commonly crude. Many of the

activities of the household were conducted out of doors, particularly the washing of clothes, the women "battling" the clothes in the nearby creek whenever weather permitted.

The early settlers were primarily hunters who supplemented their food supply by limited and primitive agriculture, particularly by raising corn. For this, few tools were necessary. The "bull tongue" plow prepared the ground for the crop or sometimes it was

FIG. 6. A typical road in one of the smaller valleys of the area of creek bottom settlement. In many places, the road is actually in the creek bed. The foot bridge shows the height to which the creek rises at high water stages. Leatherwood Creek, near Daisy, Perry County.

simply "drug" with the branch of a tree; scythes, cradles and flails were used in harvesting and threshing. Sorghum was grown for "long sweetening" and honey from the "bee gum" supplemented the supply of sorghum molasses obtained by crushing the cane in a crude press and boiling down the juice over an open fire. Surplus corn was converted into "white mule" in illicit stills.

All clothing was made in the home from homespun cloth or the skins of animals. The spinning wheel and the hand loom were necessary portions of the equipment of every pioneer household. The women worked hard and worked long hours, not only in the

home but out of doors as well. They were married in their teens; families of eight or ten or more children were not exceptional. A woman of fifty was old and commonly had fifty or more grandchildren. Economic necessity did not dictate otherwise, so families were large. A farm could be had for the clearing; with the assistance of friends, the log house could be "raised" in a day; wants were few and easily satisfied, hence population grew apace.

FIG. 7. A ridge top road thru the typical coniferous forest of the ridge tops. Near Cumberland Falls, Whitley County.

In the beginning, population was widely diffused, occupying only the "bottoms" of the larger rivers and creeks. As families grew up and the children married, they moved upstream and cleared additional land, thus confining the family to a given drainage basin, so that today the inhabitants of a given creek valley are commonly related and in many cases bear the same family name. This close relationship within limited areas and the isolation of one creek valley from another by intervening ridges or "mountains" bred a community of interest within the smaller population groups which later found expression in the feud.

As population increased, even the exceedingly rough country of the Upper Kentucky and Cumberland River basins was occupied.

By 1900, the density of population was everywhere from 18 to 45 to the square mile, virtually all an agricultural population in an area not particularly well adapted to agriculture. Families still remained large, however, and the continued increase in population led to the cultivation of increasingly steeper slopes with disastrous results in the form of washed and gullied fields on the slopes and sand and gravel covered fields on the bottoms.

In the first years of occupation, there was not only isolation from the outside but a considerable degree of isolation within the area as well, but as population increased, this internal isolation disappeared. Farms were never large in the Mountains, as the agricultural economy of the region did not lend itself to large land holdings and the development of an aristocracy based on slave operated holdings. The area had virtually no Negro population and even today, except in small portions accessible to rail lines, Negroes constitute a very small fraction of the total population. As every creek valley became occupied completely, the farms, tho never large, became even smaller and houses were closer together. Thus the original internal isolation within a given valley disappeared. Every house in a given valley was on the main and only highway, as the road paralleled the stream. In many cases the road was actually located in the bed of the creek, particularly in the case of the smaller streams which are practically dry during the summer months. Where the settlements were on ridge tops, as in some areas, the road wound along the crest of the ridge and a similar lack of internal isolation was evident, as all the farmhouses as well as the road were on the level ridge tops, the V-shaped valleys of such portions of the Mountains containing no arable land.

Conditions such as have been described persisted for nearly a century, during which period the mountain community was a self-sufficing population group dependent almost completely upon local resources. Even news percolated slowly, both in and out of the area. Adjustment to opportunity had been made, and so long as no new opportunity presented, conditions remained static. Retardation had set in; retrogression was in the offing, but rail construction arrested the process.

CIVIL WAR PERIOD

Tho the area was not the scene of major campaigns during the Civil War, the backwash of the conflict penetrated even the mountain fastnesses. During the war, the sympathies of the mountaineers were with the Union. Up to 1900, there were relatively few

Negroes in the Mountains, as there was neither necessity for slave labor nor opportunity for free Negroes. In addition, the mountaineer has never taken kindly to Negroes in the Mountains. Kephart states the mountaineer view as follows: "I b'lieve in treatin' niggers squar. The Bible says they're human—leastways some says it does—and so there'd orter be a place for them. But it's some place else—not around me." This absence of any Negro element in the population, together with the lack of any economic necessity for slave labor in the Mountains, resulted in the adherence of eastern Kentucky to the Union cause. Many Kentucky Mountaineers fought in the Union armies and guerilla warfare raged in the mountain coves and valleys, the cause of the Union being in many cases hopelessly confused with local feuds and the redress of private wrongs. The disturbed conditions of this area during this period and the loyalty of the mountaineers to the Union cause were the result of geographic conditions.

LUMBERING PERIOD

The Kentucky Mountains were originally heavily forested, the forest being a portion of the great Appalachian Hardwood Forest. The virgin forest, which up to the close of the Civil War covered a large fraction of the area, particularly the steeper slopes, contained an unsurpassed wealth of hardwood timber. Large oak, chestnut and yellow poplar, mixed with walnut, cherry, hickory, basswood, cucumber and other valuable hardwoods, occupied the coves and valleys, and on the ridges, white, yellow and black, or pitch pine, appeared in considerable quantities. The original hardwood stand probably exceeded forty-five billion feet; by 1910, this had decreased to approximately eighteen billion feet, and by 1922, to less than five billion feet.

Early lumbering operations involved only culling the stand, the removal of the more valuable and easily floated species. In the Big Sandy Region in 1895, for example, 75 per cent of the floated timber was poplar, the average log containing 600 feet of lumber and the logs varying in length from twenty to ninety feet. Today, virgin stands of yellow poplar have disappeared except in a few small holdings remote from rail lines. Walnut was also one of the first trees to be cut, being taken out with the poplar. Black cherry likewise, because of its high value, was one of the first trees to be removed. Today, oak makes up the bulk of the hardwood cut.

Lumbering operations progressed up the streams until now

every section has been lumbered or is tributary to an operating mill. The history of every valley has been similar; the merchantable timber has everywhere been stripped from the hillsides within a few years after the invasion of the lumberman.

When cut, the logs were piled in the dry creek beds to await high water, at which time they could be floated or "splashed" downstream to the larger rivers. There they were made into rafts which were either floated or towed to the mills. In some cases, portable mills today cut for local use or operate where the culled stand or the small size of the tract to be cut would not admit of the profitable operation of a larger plant.

The rapid clearing of steep slopes during the period between 1890 and 1910 has led to a temporary or perhaps even a permanent impoverishment of the area. Fifty per cent or more of the land in mountains is absolute forest land, with either too steep slopes or too thin soils to admit of cultivation or grazing on a permanent basis. On many of the steeper slopes the average life of a field under cultivation does not exceed two or three years.

The forest resource for a time supplemented the farm income materially and still does to a lesser extent, tho most of the profit accruing from lumbering operations is lost to the area, the mountaineer selling his farm or the timber for a fraction of its true value, his principal profit, if any, coming from the opportunity to secure additional income from his labor. More recently, the exploitation of the oil, gas and coal has similarly been of but slight direct benefit to the mountaineers.

THE PAST THREE DECADES

The outstanding geographic fact about the Mountain Region in the past has been its poor "relative location" which has been in turn the direct result of topographic conditions which have made communication, both within the area and with the outside, difficult. For a few years only did an important highway to the west cross the region, but use of this was soon abandoned so that the Mountains were cut off from the outside for a century.

Within the Mountains, roads have been and still are generally poor. It will never be feasible to improve all the roads, particularly those in the smaller valleys where the necessities of cultivation force the road into the creek bed. Much has been done "since the days of Daniel Boone," however, and much more will be done within the next decade. Today, for example, the Wilderness Road

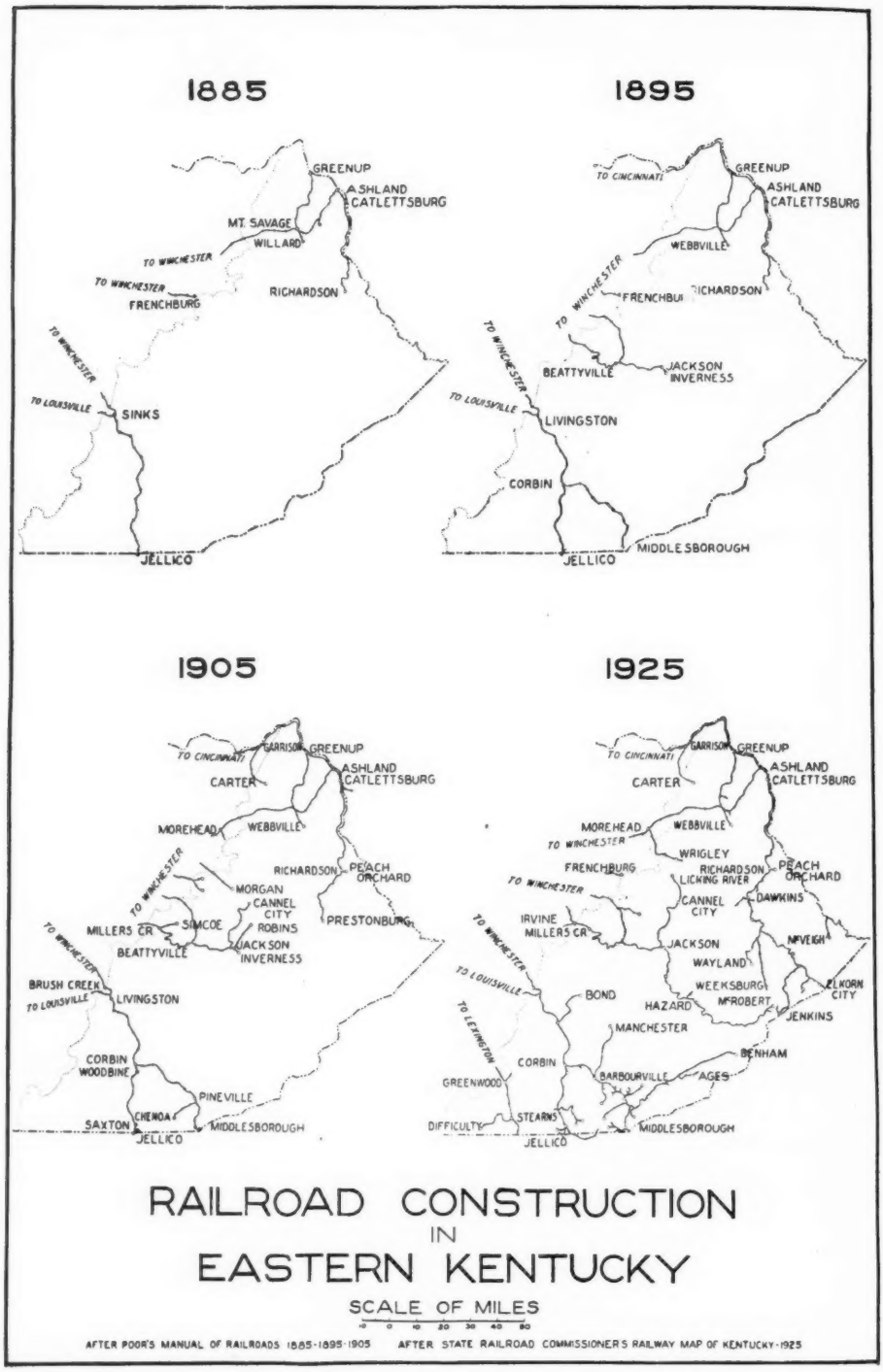


FIG. 8. Map showing rail construction in the mountains.

thru Cumberland Gap is an asphalt pavement and similar roads, some extending for considerable distances, are to be found elsewhere in the Mountains. Thus the peripheral location of the area is disappearing.

As late as 1885 there were but few railroads in the region but the following decade witnessed the penetration of the heart of the Mountains by a line thru and beyond Jackson in Breathitt County and the crossing of the southern portion by a line to Middlesboro on the old Wilderness Road. The following ten year period marked the extension of lines to areas hitherto unserved, and by 1920, few places were more than ten miles from a railroad. At present, there is one mile of railroad for every 9.5 square miles of area, tho this mileage is not evenly distributed. Further, linear distance to a railroad does not express accurately the effective or real distance, in which topography is a factor. The construction of railroads has worked great changes in the Mountains, particularly in narrow belts paralleling the rail lines, and tho the amount of change decreases rapidly with increasing distance from the railroads, it has spread to all parts of the Mountains.

The railroads were constructed primarily because of the great mineral wealth present in the form of coal, which is widely distributed. Further the seams are of sufficient number and thickness and the coal is of sufficiently high grade to make exploitation of the deposits profitable. In addition, the disposition of the seams favors mining operations.

Coal was noted in the Mountains as early as 1750 and it has been used locally as a fuel to some extent since that date, but the abundance and cheapness of wood supplied little incentive for mining operations. Early mining was by farmers as slack season employment; mining operations were primitive. The coal was shipped by raft or flatboat and the risk of loss was great. Not until railroads penetrated the Mountains could the coal from this region meet outside competition successfully. Everywhere in the Mountains important mining operations have followed—not preceded rail construction, and as rail lines have been constructed up the different valleys, coal mining has followed.

SUMMARY

In the Kentucky Mountains, white settlement found an area essentially unmodified by previous human occupancy. Pre-historic man occupied the region but without altering it; and subsequent

use of the Mountains by the Indians produced but slight modification of the physical environment. Only with the coming of whites were conditions changed.

The first comers, frontiersmen and hunters, cleared small areas and depleted the supply of game. Their descendants, as they increased in numbers, were forced in ever increasing degree to depend on agriculture for a living. They cleared the level land and encroached on the slopes in an endeavor to wring a living from the soil. They even carried clearing and cultivation so far that today the forest is in the process of repossessing fields formerly cultivated; today the forest invades the farm rather than the opposite.

As the demand for hardwood lumber increased and could not be supplied from other sources, lumbermen invaded the region, stripping the timber from the hillsides and temporarily enabling the farmers to supplement their incomes. With the lumbermen came the railroads, and with the railroads came coal mining and an influx of alien population, including Negroes.

This is the present stage, and like those which have preceded it, only one stage in the evolution of the cultural landscape of the region. The Mountain Area passed thru the pioneer stage with agriculture supplementing hunting or the reverse; it later emerged as an isolated, self-sufficient agricultural area with an agricultural economy in part inherited and in part enforced by geographic conditions. Following this period, lumbering operations bulked large in the regional economy, with agriculture likewise important. Today, mining operations are assuming a rapidly increasing importance; tomorrow may witness still other changes.

To understand present conditions, we must understand the evolution of the present from the past. To appreciate the present, it is necessary to know that the past is past. Largely gone is the romance of the Kentucky Mountains. Scrub growth has replaced the virgin forest; game is practically non-existent; even squirrels are rare. The illicit still is of much less common occurrence than in our larger urban communities; feuds are few in number. The stalwart mountaineer still exists in fiction, but his counterpart in real life is rare. The conditions which made the mountaineer of fiction have disappeared; the changing "relative location" of the area is resulting in the superimposition of twentieth century industrialism upon a previously self-sufficient agricultural community. This is a stage of development worth study.

ELECTIVE COURSE IN SENIOR HIGH SCHOOL GEOGRAPHY*

FOREWORD

The Committee presents herewith an elective course in geography for the senior high school. Like most curricula of the day, this course is to be considered merely tentative. Much experimentation will be necessary before a standard course may be arrived at, if such standardization is considered desirable.

Education is preparation for life. In its school phase, it has for its function the equipping of the youth with such experience, real or vicarious, knowledge and knowledge controls, attitudes, and ideals of conduct that he will be able to orient himself successfully in the complex world into which he is being thrust. Geography, which has for its field of study the present day economic activities of man and adjustments he makes to his physical environment, is well fitted to assume an active part in this education.

For the junior high school, the Committee recommended a two-year curriculum in geography, dealing with (1) The Resources and Industries of the United States and (2) The Interdependence of Nations in their commercial relations.

For the senior high school, the Committee is presenting herewith a course in modern Political Geography. A second alternative course may be offered later.

Committee:

A. E. Parkins, Peabody College, Nashville, Tenn., Chairman
L. O. Packard, Teachers College of the City of Boston
Zoe Thralls, Department of Education, University of Pittsburgh
Hazel Shields, High School, Portland, Me.
Clare Symonds, Senior High School, Quincy, Ill.
S. B. Hall, Professor of Secondary Education, Peabody College, Nashville, Tenn. Formerly State High School Inspector, Va.

POLITICAL GEOGRAPHY OF THE MAJOR NATIONS

In the paragraphs and pages that follow, outlining the first course, will be given:

* Report of the committee on High School Geography of the National Council of Geography Teachers. The report on Junior High School Geography appeared in the JOURNAL OF GEOGRAPHY, September, 1927. The course has also been discussed and is recommended by the Southern Council of Geography Teachers.

1. A general statement of the nature of the courses
2. A list of objectives
   a. Ultimate
   b. Immediate
3. A list of activities provided
   a. General Statement
   b. Major topics or teaching exercise
4. A list of books and other materials essential to teaching the course
5. Brief suggestions as to teaching the topics or exercises
6. One teaching exercise outlined in detail, as a possible type treatment

1. General Statement of Nature of Course

The course offered, the Political Geography of the Major Nation, deals with the geography of the major political problems, national and international in scope, of the major nations. The emphasis is on the geographic and historical setting of these problems and the geographic adjustment man has made and is making in solving or attempting to solve them.

The course is not only a review of world geography—place geography, major surface features, climates of the continents, and resources—but also introduces the learner to the larger problems of the major nations and of the world, an understanding of which is essential to active world citizenship. In brief, it is a course in world citizenship in which the basis of organization is the geographic or political region and the emphasis in interpretation is geographic.

2a. Ultimate Objectives. (Stated as "Abilities, habits, and attitudes to be carried into after-school life.")

(1) The ability to carry into after-school life the habit of wide and diversified reading and study of world affairs as a form of cultural development

(2) The ability to appreciate the privileges and obligations of world citizenship and thus to develop a readiness of spirit to help in the nations' solution of great world problems.

(3) The ability to participate in the more formal public discussions of matters of current interest as an enjoyable and useful spare-time occupation

(4) The ability to sense the elements of world citizenship, i.e., world wide viewpoint, international brotherhood, group consciousness, international fairmindedness, international charity

2b. *Immediate Objectives.* (Stated as "Abilities to be engendered.")

Contributions of Geography, in Particular

(1) The ability to appreciate the fact that most of the great international problems of the present day that confront the leaders of the nations are rooted in geographic conditions. Many of these problems are world-wide in their scope and require a knowledge of world conditions for their solution

(2) The ability to look for and apply the geographic realities underlying international problems, boundaries, geographic environments, racial inheritances, potential and developed resources, and others

(3) The ability to discover the geographic information to be found in maps, pictures, grafs, statistical tables, and current literature; and to use all the various library helps such as bibliographies, indexes, readers' guides, and others in finding facts and materials wanted

(4) The ability to organize geographic information relating to national and international problems and to present such organization effectively

(5) The ability to think accurately in terms of geography and to the point and to test the accuracy of one's own and other's conclusions

(6) The ability to read with pleasure and profit the current literature bearing on international problems, and to enter into the moods and thoughts of people of other nations and to participate vicariously in world affairs

Contributions Shared with the Social Sciences

(7) The ability to judge the actions of other nations in the light of our own national conduct in similar circumstances

(8) The ability to look at international problems from various angles and to form opinions as free from bias as possible

(9) The ability to appreciate the contribution each nation has made and is making to the world's progress and well-being

(10) The ability to think, feel, act, and re-act, vicariously, as a world citizen

3. Activities Provided for the Realization of these Objectives

a. General Statements

(1) Intensive studies of the relationships between the natural environment—surface, climate, soil, mineral resources, power resources—and the present day political, social, economic, and commercial developments of each of the major nations, and the historical antecedents of these nations

(2) Practice in the use of maps to gain clear conceptions of the distribution of and special relationship of the facts of human activities and the facts of the physical environment

(3) Practice in the use of all forms of reference material at hand (See list)

(4) Practice in problem solving involving the application of geographic and historical principles

(5) Wide reading contributing to the field of political geography on the level of the senior high school pupil

b. Major Topics or Learning Exercises

The topics or teaching exercises listed below are merely suggestive, moreover they are not to be considered "static." Geography in general and political geography in particular deal with an ever changing world. Obviously the burden of keeping the topics in march with world events rests upon the teacher.

(Figures refer to books in the reference list in which material is available for the topics treated. Nos. 1, 2, and 3 are not listed because of their general nature.)

United States: The Geography of

Our Continental Policy. (5, 6, 7, 8, 9, 12, 13)

Industrialization and Expansion. (5, 6, 7, 12, 13, 35)

America's Expansion in the Pacific. (5, 12, 13, 15)

Our Immigration Problem. (12, 13—Vol. II, No. 5)

Our Commercial and Political Relations with Canada. (4, 6, 7, 8, 12, 13, 18, 35)

Pan-Americanism. (4, 5, 12)
Problems of Philippine Independence. (5, 6, 7, 8, 9, 31—Vol. V, No. 3)

Latin-America: The Geography of
American Interests in the Caribbean. (5, 12, 13, 14, 17)
Mexico and its Undeveloped Resources. (4, 5, 6, 7, 8, 9, 14)
South America as a Field for American Commercial Expansion. (4, 5, 6, 7, 8, 12, 34)
The Basis of Commercial Rivalry in the A.B.C. Countries. (4, 6, 7, 8, 9, 12, 34)

Geographic Basis of European Influence in World Affairs. (6, 7, 8, 30)

Britain: (See suggestions No. 5 in outline)
Economic Evolution of Britain in Relation to its Natural Resources. (4, 6, 7, 8, 9, 18, 19, 20)
British Colonial Expansion and the Empire Today. (4, 5, 6, 10, 11, 18, 20)
The Value of Canada to Britain. (4, 6, 7, 8, 9, 18, 20)
The Value of Australia and New Zealand to Britain. (4, 6, 7, 8, 9, 18, 20)
The Commercial Opportunities and Problems of Britain in Western Africa. (4, 5, 6, 7, 8, 9)
Resources and Problems of South Africa and Rhodesia. (4, 20, 32)
The Commercial and Strategic Value of Egypt and Anglo Egyptian Sudan to Britain. (4, 20, 32)
Indian Problems. (4, 5, 6, 7, 8, 9, 10, 11, 27, 28)
The Oriental Route and International Politics. (5, 7, 18, 26)

France:
War Losses and Gains of France. (4, 5, 10, 11, 21)
The Basis of French Economic Revival. (4, 5, 6, 7, 8, 9, 10, 11, 21)
France as a Colonial Power, its Needs of Colonies and the Resulting Problems. (4, 5, 10, 11, 21, 22)
Political and Commercial Expansion in Western and Equatorial Africa. (4, 5, 21, 22)
Madagascar as a French Protectorate. (4, 5, 8)
Commercial Value of French Indo-China. (4, 5, 6, 7, 8, 9, 22)

Germany:

Geographic Background of Germany's Strength as an Industrial Nation. (4, 5, 6, 7, 8, 9, 10, 11, 23, 24)
German Colonial Expansion. (5, 23, 24)
Pan-Germanism. (5, 23, 24)
War Losses and their Effect on Present-Day Germany. (4, 5, 23, 24)
Problems and Prospects. (5, 23)
The Problems of the Rhine. (4, 5, 24)

The Geography of Central European Nations and their Problems. (4, 5, 6, 7, 8, 9, 10, 11, 30)

Russia:

Pre-War Russia, its Resources and their Development. (4, 5, 6, 7, 8, 9, 10, 11, 25)
Geographic and Historical Factors in Russian Expansion. (5, 25)
Place of Russia among Modern Nations. (5, 25)

Italy:

Italy's Rank among Modern Nations. (4, 5, 6, 7, 8, 9, 10, 11)
Italian Aspirations and the Accompanying Problems. (5)

Spain:

The Rise and Decline of Spain as a World Power. (5, 10, 11, 30)
Weaknesses in Modern Spain. (4, 5, 10, 11)

Africa:

European Rivalry in Africa. (5, 10, 11, 32)
African Conferences and What They Accomplished. (5)
Shifting Boundaries as Result of the World War. (4, 5, 10, 11)

The Near East:

Geographic and Historical Background of the Balkan Problem. (4, 5, 6, 7, 8, 9, 10, 11, 30)
The Importance of Constantinople. (4, 5, 10, 11, 26)
The New Turkey, its Economic Geography and its Political Accomplishments. (4, 5, 26)

The Mosul Question. (5, 26)
French in Syria. (5)
Zionism and the Jewish State. (5)
The New Kingdom of Iraq. (5)
Pan-Islamism: the Geography of its Realm and its Strength (5, 26)

The Far East:

Countries and Civilizations of the Far East. (4, 5, 6, 7, 8, 9, 29)
The European Penetration Since the Sixteenth Century. (5, 29, 34)
The Rise of Japan as a World Power. (5, 6, 7, 8, 9, 10, 11, 29)
The Rivalry of Great Powers in China and Manchuria. (4, 5, 6, 7, 8, 9, 29)
The Washington Conference. (5, 34)
The Revolution in China. (Read current literature)

4. List of Magazines, Books, and Maps

The Committee considers the magazines, books, and maps listed below the minimum materials of instruction essential for the development of the learning exercises. At the time of publication of this report, there were no high school texts available.

1. About five magazines treating current events and problems, such as Foreign Affairs, Current History, World's Work, Review of Reviews, and Forum; some geographic magazines, such as Economic Geography, National Geographic Magazine, JOURNAL OF GEOGRAPHY.
2. The back numbers of the magazines selected, for the last five years or more
3. Any of the standard encyclopedias
4. Statesman's Year Book, (annual) Macmillan Co.
5. Bowman: The New World (new edition) World Book Co.
6. Whitbeck and Finch: Economic Geography. McGraw, Hill & Co.
7. Smith: Commerce and Industry. Holt
8. Chisholm: Handbook of Commercial Geography. Longman, Green
9. McFarlane: Economic Geography. Pitman
10. Webster: Readings in Modern European History. Heath
11. McKinley, Howland, and Dann: World History of Today. American Book Company
12. Coolidge: The United States as a World Power. Macmillan
13. Semple: American History and its Geographic Conditions. Houghton, Mifflin
14. Latane: The United States and Latin-America. Doubleday, Page
15. Golovin: The Problem of the Pacific in the Twentieth Century
16. Whitbeck: Economic Geography of South America. McGraw, Hill
17. Jones: Caribbean Interests of the United States. Appleton
18. Inge: England. Scribner's

19. Innes: England's Industrial Development. Rivingtons, London
20. Unstead: The British Empire and its Problems. Sedwick and Jackson, London
21. Huddleston: France. Scribner's
22. Stuart: French Foreign Policy. Century
23. Gooch: Germany. Scribner's
24. Coar: The Old and the New Germany. Knopf, N.Y.
25. Makeef and O'Hara: Russia. Scribner's
26. Toynbee and Kirkwood. Turkey. Scribner's
27. Holderness: Peoples and Problems of India. Holt. (Home University Series)
28. Chirol: India. Scribner's
29. Latourette: The Development of Japan. Macmillan
30. Adkins: Europe's New Map. People's Institute Pub. Co., N.Y.
31. The Reference Shelf. Wilson Co. (Briefs for debates with Ref.)
32. Johnson: The Opening of Africa. Holt. (Home University Series)
33. Williams: China Yesterday and Today. Crowell
34. Jones: Commerce of South America. Ginn & Co.
35. Commerce Year Book. U. S. Dept. of Commerce
36. A set of political-physical maps of the continents and of the United States. In addition, maps showing the distribution of rainfall, temperature, plants, population, and occupations.

5. Suggestions as to Teaching the Topics

(Space for publication does not permit the organization of a series of lesson plans with specific objectives for each. Only a few general suggestions and the outline of one teaching exercise are here possible.)

In the course outlined, it is assumed that most of the large problems, national and international, for the most part, are to be interpreted in the light of economic and political geography, for most of the problems concern the control of raw materials, lands possessing or producing these materals, power resources, commerce, etc. This inter-relationship of political questions and problems and the natural environment should be stressed in each exercise. Unless this interpretative phase is emphasized, the course will develop into either a mere fact course in geography or a fact course in history and economics. One may develop concepts of the natural environment at the beginning of each learning exercise and show to what extent each problem is an adjustment to the elements of environment; or one may start with the problem and develop concepts of the natural environment that are closely related to the problem under consideration.

The environmental background essential for the geographic treatment of teaching exercise listed under No. 3 in outline may be obtained largely from such references as 3, 4, 6, 7, 8, 9, 16, and

other standard books on geography. Most of the books listed after the numbers are standard references in political science, history, and economics. Bowmans', the *New World,* is an excellent type of modern political geography. While it is not of senior high school level, it may be used with effectiveness as a reference in this course.

It is best to vary the method of attack and organization. All the methods which the skilful teacher employs should be made use of—problem, project, comparison, topical outline. Teachers and pupils should cooperate in working out the outline for developing each problem.

6. A Type Treatment

As a sample of a type treatment the committee is selecting the last topic in the first group namely: PROBLEMS OF PHILIPPINE INDEPENDENCE.

The Philippine problem is likely to come up before Congress for a final solution at some time within the near future. Congressmen and citizens in general in the United States must answer questions similar to these: Should the Islands be granted absolute independence? Should they be retained as colonies and developed by American capital? If granted their independence, would the Islands be able to protect themselves against possible aggressive nations without the protection of the American navy and army?

I. Where and what are the Philippine Islands?
   1. Classification as to climate
   2. Area, extent, and number of people compared with the United States
   3. Locational geography with respect
      a. To the United States
      b. To other world powers or their colonies
      c. To markets of world
   4. How ownership by the United States was established
   5. Previous political allegiance

II. Upon what do the Philippine leaders base their claims for independence?
   1. Aguinaldo, the Philippine leader, who resisted our assumption of control for three years after the close of the Spanish-American War, made peace on our promise to grant independence to the Islands.
   2. The Spanish-American War was not a war of aggression,

we have frequently said. The United States assumed control as the only feasible way of insuring a prosperous and peaceable future for the Islands. We also wanted to demonstrate to the world the best methods of colonial control.

3. The American people never felt that the holding of subject people "squared" with the idea of democracy.
4. Many American statesmen, as Roosevelt, Taft, Wilson, and Root, have favored granting independence when the Islands were prepared to govern themselves. Political platforms of all of the major parties in our country have at times pledged independence.
5. Philippine commissions, sent by the United States to study the Philippine problem, have recommended independence, altho often with some reservations.
6. The Jones Act of 1916 declared it was the intention of the people of the United States, when control was taken over, to "withdraw sovereignty" when the Filipinos demonstrated their ability to govern and protect themselves.

III. The major question, therefore, is: CAN THE ISLANDS GOVERN AND PROTECT THEMSELVES?

1. The Philippine leaders desire to establish a republican form of government when independence is granted. A successful form of republican government demands:
   a. An intelligent, educated body of citizens
   b. Honest, faithful, altruistic, patriotic statesmen for leaders
   c. Resources and wealth to insure a revenue sufficient to meet the expenses of government and provide adequate defense
   d. Adequate transportation facilities both within the realm and with the great markets of the world
   e. Unity, in so far as possible, in race, language, and educational attainments
   f. An equal opportunity in the making of a living and the acquisition of wealth
2. The extent to which the resources and the people of the Islands meet these requirements may be determined by a careful study of such items in the geography of the Islands as (only a suggested list):

a. The people—races; languages; religions; educational status; present educational facilities; financial support of schools and colleges; extent of use of newspapers and magazines as a means of self-education; civic and national consciousness; ownership of property; bank accounts; occupations developed; ingenuity of people; ability of leaders to handle large-scale enterprise; stability of government and financial system

b. Resources of the land—forest resources and production of forest products; potential area of agricultural lands as affected by surface features and climate; present area cultivated; crops produced as adjustments to surface, climate, markets, economic conditions, and other items; export products; opportunities for development as the source of rubber, vegetable oils, fibers, and other tropical products; mineral and power resources; opportunities for developing manufacturing.

c. Natural transportational conditions—surface features affecting development of railway systems to all parts of the Islands; harbors; physical conditions affecting intercommunication between islands; railway and water transportation facilities developed; contact with world markets

IV. Other major questions to consider are:

1. What are the present political relations between the United States and the Philippine Islands?
2. Does the United States restrict the people in exercising their full rights as Philippine citizens?
3. In what ways would the Islands be benefited by independence? Should they expect us to furnish protection from aggressive nations if independence were granted? Should they expect duty-free entrance to our markets for their export products if independence be granted?
4. Is there any other nation better able to supply capital to develop the resources of the Islands than the United States? If sovereignty is withdrawn, is American capital likely to go into the Islands as freely as if sovereignty were retained?
5. Would the mass of the Philippine people be more contented,

more prosperous, and make greater progress under Philippine leadership than under the present political system?

6. Have the Philippine leaders demonstrated their ability to govern the Islands in a satisfactory manner?

V. The answers to the questions propounded in the opening paragraphs of this outline are left to the individual pupils to formulate to their own satisfaction as is their duty as citizens in the American Republic.

SOVEREIGNTY IN ANTARCTICA

LAURA H. MARTIN
Washington, D.C.

Rear Admiral Byrd's recent flight to the South Pole brings to mind the earlier explorations in the South Polar region, and the possibility of conflicting claims of nations on various parts of the Antarctic continent.

The first thing that might be considered to have affected the sovereignty of Antarctica was the Bull of Pope Alexander VI in 1493 (modified in the Treaty of Tordesillas, 1494), giving Spain the right to all land west of a line (about 48 degrees West Longitude) and Portugal all land east of it, from the Arctic to the Antarctic Pole. This is shown by a dashed line on the map. However, as no one now recalls when, if ever, Spain or Portugal has laid claim to any part of Antarctica under this decree and treaty, the line of the Bull in the Antarctic is more interesting than important.

The discovery of the Antarctic continent probably belongs as much to the United States as to any other nation, altho a continent in this region had been definitely shown on early maps such as that of the Dutchman Ortelius in 1575. Early voyages in the South Seas, particularly that of Cook in 1775, revealed the fact that there were no connections between South America, Africa, Australia or New Zealand and any land that might be found near the South Pole. The early sealers discovered the South Shetland Islands before 1819. In 1821 Captain Nathaniel B. Palmer, on a sealing voyage from Stonington, Connecticut, discovered what a Russian (Bellingshausen) promptly named Palmer Land (No. 1 on map).

This land, fringed by islands and very much indented, is part of a mountainous range which extends to the south and after a broad sweep to the east and back (as shown by islands and shallow water) is continued in the Andes of South America. This land was considered part of the Antarctic mainland for many years, and it will be seen on old maps as the extremity of a broad peninsula, tapering to the north and east, south of South America.

DISCOVERIES UNDER OUR AUSPICES

Captain Wilkins, in 1928, and again this year, under auspices of the American Geographical Society of New York, flew south from near Palmer Land and found that the peninsula resolved itself into two large islands (which we believe will come to be called Palmer Island to the north and Graham Island to the south) separated from the Antarctic mainland by an island—dotted strait. Still, it is fair to say that Palmer discovered Antarctica in the same sense that Columbus, whose first landfall was an island, discovered America.

From these discoveries the United States could lay claim to considerable areas in this region, i.e., the major part of Palmer Island and the southeastern part of Graham Island and the islands and coast to the south.

Somewhat later than Palmer, in 1839-40, Lieutenant Wilkes of the United States Navy was sent to the Antarctic by the United States Government with two sloops of war and four smaller vessels. The objects which the trip were "destined to promote, being altogether scientific and useful, were intended for the benefit equally of the United States and of all commercial nations of the world."

Lieutenant Wilkes may be considered the discoverer of a very large part of the Antarctic continent, because he skirted its shores thru 59° of longitude which the world calls Wilkes Land (No. 2 on map) and made a chart of his findings for the United States Navy. His work has been belittled by many because he did not land and take possession of the country in the name of the United States. Some of the locations of his landfalls have been found to be not quite accurate, but considering the older scientific equipment and inadequate vessels and supplies, as well as the almost continuous bad weather and ice he encountered, the accomplishment of his mission is a superb achievement and one of which the United States may be proud.

The United States has so far never claimed land in the Antarctic, not even in the case of Wilkes Land, discovered by an official expedition. Charles Evans Hughes made the announcement, as late as 1924, that "it is the opinion of the Department of State that the discovery of lands unknown to civilization, even when coupled with a formal taking of possession, does not support a valid claim of sovereignty unless the discovery is followed by an actual settlement of the discovered country."

Byrd Reveals New Country

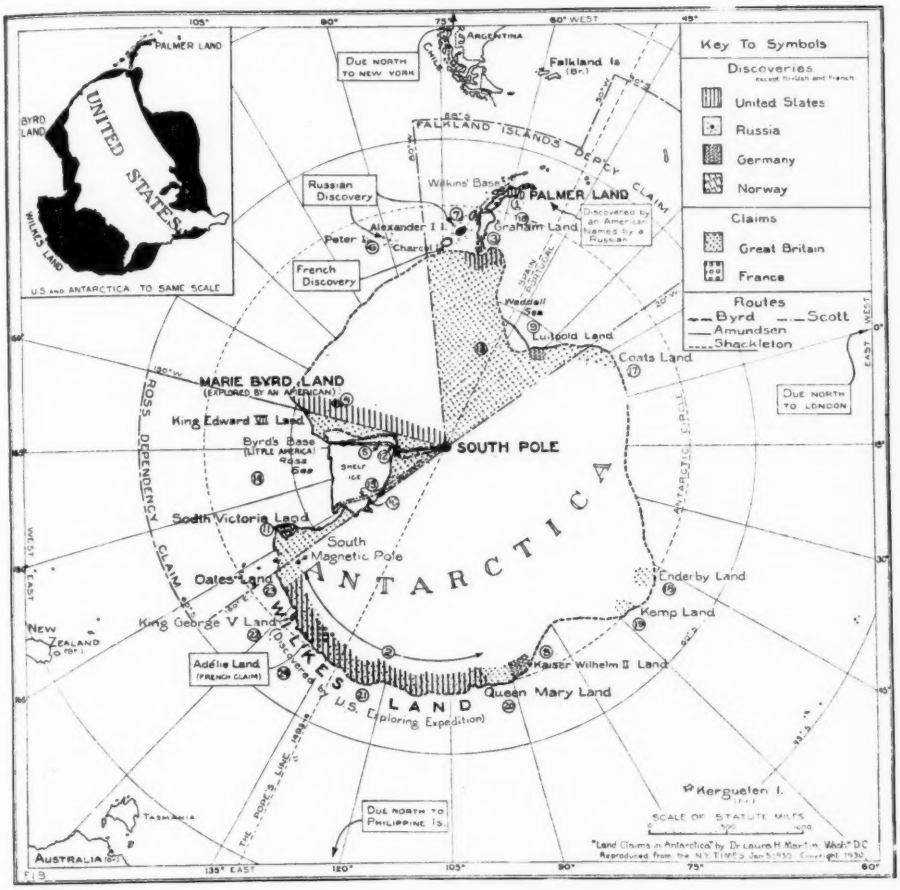
Admiral Byrd's flights have most recently added to our knowledge of Antarctica and have again brought to the fore the question whether the United States might claim land there on the basis of discovery. Byrd's flight to the South Pole, being over the route of Amundsen, was interesting chiefly because of the additional country on each side which could be seen from an airplane and not from the ground. Byrd added inestimably to our knowledge of the terrain by his description of the mountains, passes and glaciers seen on his way (No. 5 on the map) to and from the Pole.

As will be seen from the map, Byrd's flights to and from the Pole covered slightly different routes. The land to the east of the route to the Pole had never been explored except a short distance from Byrd's base (Scott Nunataks and King Edward VII Land). Byrd's trips showed the land to the southeast named Marie Byrd Land (No. 4 on map) and the great north-south range of mountains reported on December 8, 1929, as well as a new section of coastline northeast from King Edward VII Land. Byrd's air discoveries, followed up in part by geological and other field parties, have revealed country never before seen.

Admiral Byrd, while knowing the position of the United States on claiming land in the Antarctic, evidently wanted to be on the safe side; as Dr. Isaiah Bowman of the American Geographical Society of New York recently pointed out: "In order to avoid the consideration of the new discoveries as mere continuation by land from the Ross Dependency, it seemed desirable to make an independent tie-up with the coastline in case further consideration of the discoveries makes it wise for the United States Government to set up a specific claim."

THE LANDS BRITAIN CLAIMS

Great Britain, on the other hand, takes a different view from that held by the United States. It lays claim to a great deal of land in the Antarctic, some discovered by its explorers and some not. Its two largest claims are great areas called Falkland Islands



Dependencies and Ross Dependency. They are shaped like two great pieces of pie and are shaded on the map.

The Falkland Islands Dependencies claim (No. 13 on map) includes, besides the areas already spoken of as discovered by Palmer and Wilkins, (a) the islands to the north (South Shetland, South Orkney Islands and South Georgia), which are important as bases for the whaling industry, and (b) the land south of the Palmer Land and all around Weddell Sea to the meridian of 20° W.

Cook, Ross, Powell, Weddell and Shackleton have done pioneer work in various parts of this region, but so have men of four other nationalities, particularly Bellingshausen (No. 6 on map), D'Urville, Gerlache, Larsen (No. 10 on map), Nordenskjold, Charcot and Filchner (No. 9 on map), besides the explorers Palmer and Wilkins. Thus even along the coast, where more is known than anywhere else, much of Great Britain's claim could be challenged, on the basis of right of discovery. Wherefore one wonders at the justice of its projecting this claim to the Pole, which includes, of course, a tremendous area never seen by any one, even the penguins.

The second great pie-shaped area, the Ross Dependency claim (No. 14 on map), includes that section around Ross Sea which was explored in large part by Ross, Scott and Shackleton and chosen by all for the dashes to the Pole. If discovery amounts to anything, Great Britain seems to have some justification for its claim to the land nearly to the Pole on the west side of the region, because here Shackleton came within ninety-seven miles of the Pole before Amundsen: and here Scott actually did reach the Pole soon after Amundsen. However, Borchegrevink's exploration near Cape Adare (No. 11 on map) and Amundsen's dash to the Pole (No. 12 on map) give Norway a basis for claims in this area. Amundsen and Byrd have done much toward filling in gaps in the knowledge of the region claimed by Great Britain.

FRENCH AND OTHER CLAIMS

Great Britain does not restrict its claims to these two large segments, but asserts dominion over several other points and areas along the coast. These will be seen shaded (Nos. 17-23) on the map. Here again we note that British claims go beyond the parts discovered by Englishmen. This is particularly noteworthy in No. 21, which the British call Wilkes Land, attaching that name only to the part of Wilkes Land west of Adélie Land. This would extend from near 140° E. Long. to some point further west, probably up to Queen Mary Land at about 96° E.

This great segment of the Antarctic coast, as we have already shown, was discovered by Wilkes in 1840. It was explored more fully by the Australian expedition in 1911-12 under Mawson. A British claim to this section of Wilkes Land seems indefensible, especially as Sir Douglas Mawson himself concedes: "It is indisputable that he [Wilkes] first outlined in their continuity and

recognized as such the phenomena of a continental margin for a distance of 1,800 miles." (*Problems of Polar Research,* p. 254.)

If Great Britain should project these claims to the Pole, as it has done in the Falkland Island and Ross Dependencies claims, we would see that altogether it had laid claim to nearly three-quarters of the continent (3,000,000 out of 4,175,000 square miles). The small insert map, where the United States is drawn on the same scale and placed within Antarctica, shows that the latter is considerably larger than the United States. In fact, a claim of three-quarters of Antarctica (as Great Britain's would be if all projected to the Pole) would be equal, roughly, to the area of the United States excluding South Carolina.

France is the only country besides Great Britain which now lays definite claim to land in the Antarctic. Its claims are based on the voyage of d'Urville in search of the South Magnetic Pole in 1840. D'Urville was in the region of 140° E. visited by Wilkes the same year, and first saw Antarctica less than one day after Wilkes did. He was in ignorance of Wilkes's prior discovery. D'Urville landed on a small islet near the coast, took possession for France and called the place Adélie Land (No. 24 on map). The claims of France were published in March, 1924, in the *Journal Officiel,* and were made to reserve the rights of fishing, hunting and mining in the region to Frenchmen.

As this particular region has been found by later researches (Mawson) to be probably the most trying part of the Antarctic continent, where the wind blows continuously from an average of fifty miles an hour to an extreme limit of 100 miles an hour, it is not probable that France will derive much benefit from its claim. Its claim also, of course, may be challenged on account of Wilkes's previous discovery. Great Britain seems to concede France's claim to Adélie Land. It does not claim Adélie Land, even tho Mawson made his base just to the east (at 142°) and worked east before going west as far as Queen Mary Land, which he discovered, and Kaiser Wilhelm Land, discovered by a German.

Many other nations, notably Russia, Germany, Norway, Sweden, Belgium and Japan have aided in the exploration of Antarctica and can conceivably lay claim to certain areas (Nos. 6-12 on the map). Only a few of the places discovered, however, can be shown on a map of this size.

Late in December, 1929, a new discovery of land on the Antarctic continent was made by two Norse airmen, Captain Hjalmar Riiser-Larsen and Captain Luetzow Holm, who flew from a whaler and solemnly took possession of the land in the name of Norway. All that is known at present of the location of this discovery is that it lies between Kemp Land and Enderby Land, on the other side of the South Pole from Little America, Rear Admiral Byrd's base.

The Norwegian Prime Minister said recently, however, that Norway had constantly maintained that territory which had not been occupied *de facto* by any nation should be considered No Man's Land. The Norwegian Government, therefore, he said, had dissociated itself from the theory of so-called sectors in the Arctic and Antarctic waters (and thus by implication would contest Great Britain's claims). Any claims that Germany and Austria and Hungary might have had have been renounced under clauses in the treaties of peace in 1919.

The United States has not acknowledged the claims set forth by Great Britain to the region of Byrd's flights, nor has it acknowledged British claims in other parts of the Antarctic. Some utterance from the State Department concerning this subject would be received with great interest. Nor has it, by any manner of means, acknowledged France's claim to Adélie Land. Up to the present time our attitude seems to be that, there being no permanent settlement in the Antarctic, there can be no justifiable claims to sovereignty.

Actual sovereignty in most parts of the Antarctic is in reality of small practical value. The land is almost entirely covered by thick ice. It is practically devoid of life except on the shores of some of the islands in the more temperate regions, such as the South Shetland Islands, Palmer Land, etc. Sealing is no longer profitable, and little use, so far, has been found for the penguins. Whaling, alone, offers a source of profit. This is not inconsiderable, as seen in the report of the Falkland Islands Dependencies, where it is revealed that the value of whale oil for the region was 680,000,000 kroner, or about $24,400,000, for the years between 1906 and 1927.

It was on account of the whaling industry, undoubtedly, that Great Britain made its claims to the Falkland Islands Dependen-

cies in 1908 and further in 1917. Whaling has also been carried on in the Ross Sea region since 1924, bringing in about $240,000 worth of oil a year. Nearly all of it is exported to the United States for use in making soap. However, unless steps are taken to protect the whales in the Antarctic their last refuge will be taken from them, with the probability of extinction of the species, and the wiping out of practically the sole source of revenue from the Antarctic.

INTERNATIONAL AGREEMENT EXPECTED

From the fact that thirteen Norwegian firms and one from Argentina pay Great Britain for the privilege of whaling in these waters, at least these two countries would be cordial to some sort of international agreement like that relating to Spitsbergen. Under this agreement, proclaimed in 1924, all the contracting nations have free fishing, hunting, mining and commercial rights, and, altho they acknowledge the sovereignty of Norway over the islands, the agreement provides that it has no more rights than the rest of the contracting parties and can make no charges or restrictions which are not applicable to itself as well. It does have the power to take suitable measures "to insure the preservation of the fauna and flora of the said regions and their territorial waters," it being clearly understood that Norway would observe such regulations as well as the other contracting parties.

If such an agreement were made concerning the Antarctic, Norway and Argentina could do whaling in these waters without hindrance from, or tribute to, Great Britain, and all would be under regulations which would limit the killing of whales in order to save them from extinction.

Argentina would doubtless welcome such an agreement for another reason. It has always resented Great Britain's claim to the Falkland Islands, as it colonized them in 1832 after the islands had been abandoned by the British for forty-six years. Also its whaling and exploring trips have given it claims in the islands to the south so that its tribute in license fees to Great Britain for whaling, in what it claims as its own waters, must be particularly galling. As the League of Nations has interested itself in the conservation of sea life in the Antarctic, we may look for some sort of agreement, at least for the conservation of life, in the future.

Returning to the claims of France and Great Britain in the Ant-

arctic, it really makes very little difference whether the explorer actually landed and took possession of the land in the name of his sovereign, because nothing really came of it, as there is no permanent population anywhere in the Antarctic. Unless penguin eggs become the one delicacy necessary for famishing millions, or penguin oil can be burned in Fords, or unless some material small in bulk and of great value, like diamonds or radium ore should be discovered, there probably would be little chance of conflict between nations, no matter what their claims might be.

Down in its heart one wonders if Great Britain does not really believe, as do the United States and Norway, what Queen Elizabeth stated in no uncertain language in 1580. When Mendoza, the Spanish Ambassador, remonstrated against the expedition of Drake, Queen Elizabeth replied that *she did not understand why either her subjects or those of any other European power should be debarred from traffic in the Indies; that she did not acknowledge the Spaniards to have any title by donation of the Bishop of Rome, so she knew no right they had to any places other than those they were in actual possession of, for their having touched only here and there upon a coast and given names to a few rivers and capes were such insignificant things as could in no way entitle them to property further than in the parts where they actually settled and continued to inhabit.* (Twiss's "Law of Nations," pp. 208-9.)

DISTRIBUTION OF IRRIGATED AREAS WITH SPECIAL REFERENCE TO EUROPE

W. O. BLANCHARD
University of Illinois

The significance of the 20-inch isohyet as marking the *approximate average* limit of humid agriculture and the 10-inch isohyet as separating the semi-arid from the arid or desert regions has been generally recognized. There is, however, a far less general appreciation of the wide extent of the lands deficient in moisture and the very limited areas now under irrigation.

Data recently compiled* indicate that almost one-third of the earth's surface receives less than 10 inches of rain fall, while more than another third receive only between 10 inches and 20 inches. Speaking very generally then, for every acre with sufficient moisture to be capable of large production, there is another acre of limited productivity and a third so dry as to be practically unproductive. Water supply is obviously the most important factor in determining the potential productivity of the land surface of the earth.

To what extent has irrigation been able to remedy this enormous deficit in rainfall? In 1920 the total world acreage artificially watered was estimated at approximately 100,000,000 or about 7 per cent of the total cultivated land. By 1929, altho this had been doubled, it amounted in the aggregate to an acreage only about twice the size of the state of California. This would be less than 2 per cent of the land classed as "arid," i.e., receiving less than ten inches of rainfall. Even allowing for a larger output per irrigated acre than from ordinary cropping, artificial watering has obviously made but little impression upon the vast dry areas of the earth.

IRRIGATION AMONG THE CONTINENTS

The unequal distribution of irrigated land among the continents is indicated in Fig. 1. Asia with two large densely populated agricultural regions and its vast acreage devoted to the water-loving rice, possesses almost 72 per cent of the world's total. North America, chiefly in the United States and Mexico, is a poor second

* Mead, L., Foreign Markets for Irrigation Machinery and Equipment. U.S.D.C., Trade Promotion Series No. 73, 1929.

with 13 per cent and Europe third with but 7 per cent. Relative to their areas, which would be a fairer basis of comparison, Asia is still far in the lead with one irrigated acre in every 72 of surface, while on this basis Europe is second with one acre in every 158 of its area. Rated according to population, Europe ranks the lowest among the continents, there being but 31 acres under irrigation for every 100 inhabitants.

EUROPE VS. ASIA

Tho possessing twice the population density of Asia, Europe has irrigated, in proportion to its area, only about one-half as much as the former. To a considerable degree this is a tribute to the smaller continent's more favorable distribution of rainfall. Indeed, Europe is the only grand division without an extensive desert area.

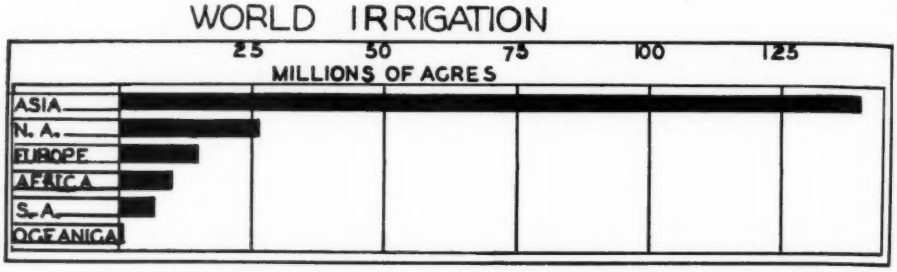


FIG. 1. Continental distribution of irrigated areas

In addition that continent is highly industrialized and is able to purchase food supplies from other countries. Asia on the other hand, is predominantly agricultural and furthermore has a large acreage in certain crops, for whose growth irrigation is almost a necessity.

EUROPE'S RAINFALL AND IRRIGATION

The favorable areal distribution of Europe's precipitation is shown in Fig. 2. More than one-half of the continent receives over 20 inches annually, while the area with less than 10 inches is negligible—less than 5 per cent in fact. The zone receiving from 10 inches to 20 inches lies in the extreme northeast, and east, with a small area in Spain.

Fig. 3, showing the extent of irrigated acreage by countries of Europe, illustrates several interesting features, especially when compared with the map of rainfall. The most striking fact is the concentration of irrigated acreage in the western Mediterranean,

France, Italy and Spain accounting for over 90 per cent of all European lands artificially watered.

A comparison of Figs. 2 and 3 reveals the apparently anomolous situation that the major part of the lands receiving less than 20 inches of rain are in the northeast while the principal irrigated areas are in the opposite corner—the southwest. Apparently the

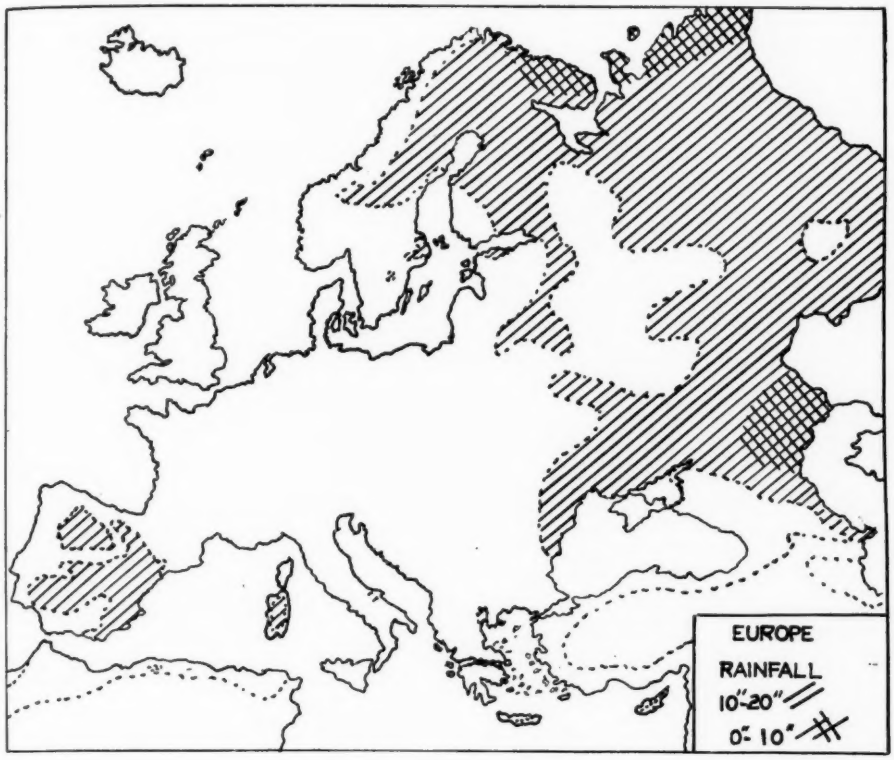


FIG. 2. Europe—Rainfall

relation of irrigation to annual precipitation is not so simple as it might at first appear.

PRECIPITATION AND AGRICULTURE

To the question of how much rainfall suffices for ordinary agriculture the annual precipitation data provide but a very incomplete answer. *When* the rainfall comes may be just as important as *how much* is received. Europe is, as we have seen, very fortunate in its areal distribution of moisture, but, in the south it is handicapped by a bad seasonal distribution. A marked summer minimum of rain-

fall combined with high temperatures produces drought even tho the annual amount be over 20 inches. Conversely, northeastern Europe receiving from 10 inches to 20 inches but with a summer maximum and a smaller evaporation coefficient may have sufficient moisture for ordinary agriculture. Thus, thruout much of the Mediterranean the summer growth of any but a few drought

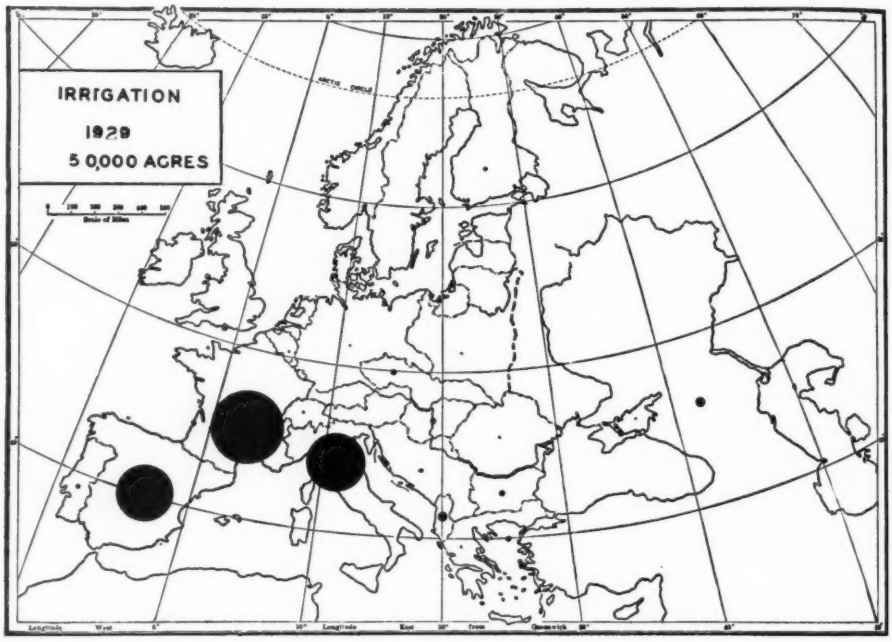


FIG. 3. Irrigation in Europe

resisting plants necessitates artificial watering. Jerusalem has about the same annual rainfall as does London, but the one is in a desert, the other, in a garden.

But why the concentration of irrigation in the *western* rather than the *eastern* Mediterranean section of Europe? In the former there is a greater degree of political stability, of cooperative effort, of scientific agricultural knowledge. The physical bases—alluvial plains with snow and glacier fed streams—are available. Again, the great industrial population of northwestern Europe constitutes an excellent market easily accessible for vegetables, fruits and flowers from the irrigated fields in the southwest.

SPAIN VS. FRANCE AND ITALY

In Spain most of the irrigated lands are semi-arid and would be used only for sheep pasture if unwatered. Two-thirds of its irrigated land is found along the lowlands margining the Meseta on the north, south and east—a fringe of luxuriant gardens around a barren and desolate plateau. Many of these irrigation canals were built by the Moors.

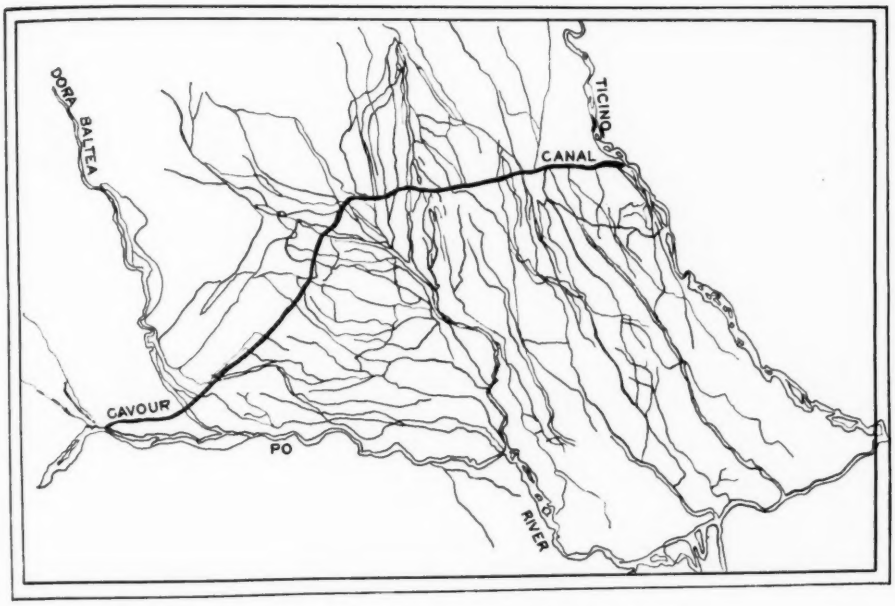


FIG. 4. Network of irrigation canals west of Milan

Much of the irrigated land of France and Italy, on the other hand, is in a region of moderate rainfall, and the addition of irrigation water with accompanying increased yields represents one of the methods of making agriculture more intensive, quite similar to the large use of fertilizers or more careful tillage. The western or upper Po basin is the irrigation region par excellence. The northern plain of Italy was formerly an extension of the Adriatic and the same rivers which transformed it from a gulf to a plain are now busy watering the fields and energizing the factories of that populous region. The upper Po and its tributaries are torrential, but in the lower portion the river winds sluggishly over a broad flat alluvial plain. In the upper portion water power and irrigation development have consequently made great progress; in the lower,

drainage and flood control are necessary. The superiority of the Alpine or northern tributaries in volume and regularity of flow from snows and ice of the Alps has given the north side of the Po ten acres of irrigated land to every one on the south. About Milan the countryside has the appearance of a great garden with a network of canals. The rainfall of that section is greater than in central Illinois yet the abundance of streams makes even irrigation of pastures profitable. Fig. 4, a map of irrigation between the Dora Baltea and Ticino, west of Milan gives an excellent idea of the intricate maze of canals in this region. The Cavour canal carrying water from the upper Po for over 50 miles to the Ticino is shown running parallel to the foothills of the Alps. Fig 5, shows the head of the canal, the nearly dry Po channel, in the foreground, the diversion dam, and the canal leading off to the left. In its course the canal is carried under and over many streams and other canals. The upper Po waters are relatively warm, those of the Dora Baltea fed by melting snow, cold. By proper regulation of the amount admitted into the canal from each, considerable temperature control over the irrigated fields is possible. Fig. 6, a view over the countryside near Milan, shows the garden-like aspect of the region. North Italy as a result of these favorable conditions accounts for four-fifths of all the irri-

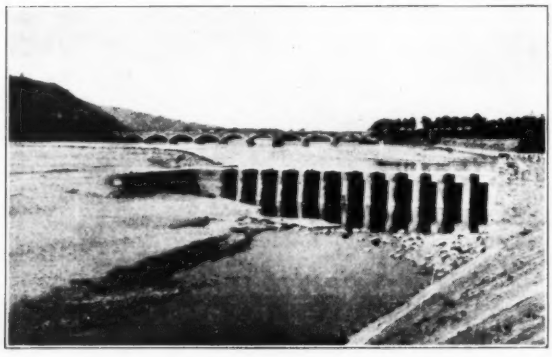


FIG. 5. Head of Cavour Canal

FIG. 6. Landscape near Milan (Italy) showing agriculture carried on under irrigation

gated acreage of the nation and two provinces, Piedmont and Lombardy, alone possess 72 per cent.

It is interesting to note that some of the historically famous irrigated regions are smaller than several of which little is heard. Fig. 8, represents diagramatically the irrigation in certain selected

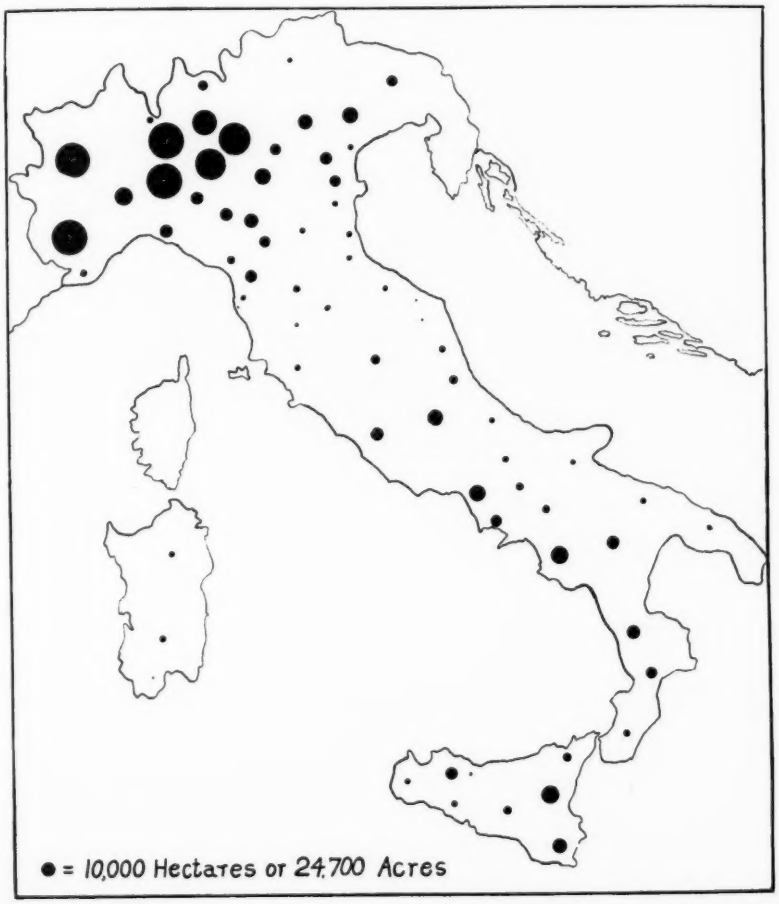


FIG. 7. Map showing area (by provinces) under irrigation. Data from "Foreign Markets for Irrigation Machinery and Equipment." Dept. of Commerce Trade Promotion Series. No. 73. 1929.

areas. France, or even Mexico, is shown to have larger areas artificially watered than has Egypt. Part of the greater publicity given certain regions such as the valleys of the Tigris, Euphrates and the Nile is due to their more spectacular setting—typical oases gar-

dens in a barren desert. The great expansion in irrigation in recent times has been in the semi-arid rather than the desert regions, and the use of modern machinery and large capital has served to dwarf in size some of the world's old irrigation valleys. Thus the United States alone has about four times the area irrigated by the Nile.

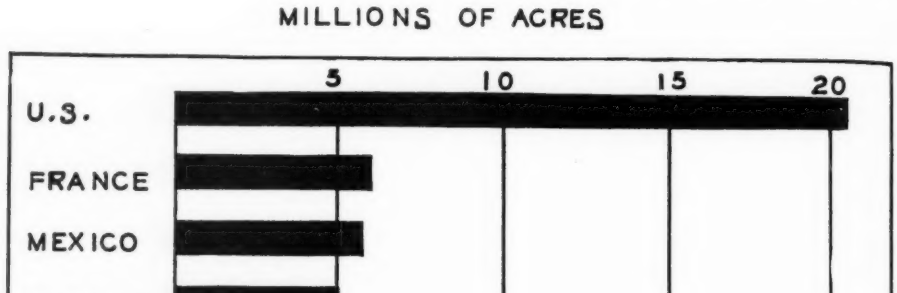


FIG. 8. Irrigation in selected countries

The actual value of irrigation is, of course, not to be measured by the area watered, but rather by the wealth produced. The irrigated area of Egypt is cultivated much more intensively and produces much more per acre than does that of the United States, and at the same time supports ten or twelve times as many people, albeit on a far lower scale of living.

EDITORIAL NOTES AND NEWS

We present in this number of the JOURNAL the third article in our series of experimental geographic writing. The general plan of the series was set forth in the January number. We have received letters from a number of people volunteering to try their hand in this experiment. All these offers were accepted immediately. We will be pleased to hear from others especially from those who have visited various parts of the world and who can give us descriptions of life in relation to environment in one or more such places. We plan to present a great variety of topics and in addition to those already announced, will publish a study of a Lake City, which represents a unique study in urban geography. We also have one dealing with the rise and decline of a mining section in the Rocky Mountain area.

The Editor expects, as a matter of routine, to be criticized for any plan that he initiates. It has been gratifying, therefore, to receive so many letters of commendation, well wishes, and offers of assistance, and only one letter of criticism. The author of this letter appears to be thinking in terms that were current fifteen or twenty years ago. He is worried because we suggest that explanations belonging to the physicist, meteorologist, geologist, astronomer, etc., should be left to those specialists and eliminated from geography. There is no doubt that the time has come when geographers must formulate a body of material that is distinctly geographic. Their field is sufficiently large to enable them to present material that is characteristically geographic without entering any other field to find something to explain. We do not presume to say that the type of geography sought in this scheme is the only kind of sound geographic writing. In fact we now have a most interesting manuscript that illustrates an entirely different viewpoint. We have followed the definition stated because it appears to be the most widely accepted one, appearing commonly under the general heading of human geography. However, much of our "human geography" has lacked the human element, or has relegated it to a secondary position.

Transportation facilities are among the greatest agencies promoting the progress of modern civilization. This has been shown in the province of Fukien, China. United States Consul Sokobin reports that, once a survey of a street was made, the plans were carried out in spite of all opposition with the result that the city of Foochow now presents a very greatly altered appearance with its 48 foot streets, new shop fronts, and new American motor cars. Most of the roads in the city have been built with a concrete surface. It is interesting to note that large stone blocks taken from the city wall were used on one of the important streets. A similar practice has been followed in Canton, China where houses on both side of the narrow streets have been torn down and new shops have been constructed giving the city a greatly improved appearance.

Since 1925 the Italian Government has been making strenuous efforts to make Italy self-sufficient in wheat production. The results of these efforts were recently reported at a Rotary Club meeting in Milan. It was then stated that if the yield per acre would reach 25.3 bushels, the "Battle of Wheat" would be won. Last year the yield was 22.19 bushels. A ton of literature urging farmers to help Italy achieve a "Wheat Victory" was recently distributed by airplane over some of the important farming centers of Italy.

An interesting and profitable correlation between geography teaching and museum exhibits was recently made at Winthrop College, Rock Hill, South Carolina, under the direction of Mildred D. Babcock. Following the study of the Arctic, the class formed

an Arctic Party and undertook an Arctic Expedition to the Museum. A carefully planned program of games, contests and talks helped direct the children's attention to particular exhibits illustrating Arctic life. Such correlations help children gain an appreciation of a museum as a study hall, not a mere sightseeing place.

A field course in mountain geography will be offered this summer by Harvard University. Professor Raoul Blanchard of Harvard and of the University of Grenoble and Professor H. W. Ahlmann of the University of Stockholm will conduct the course. All instruction will be in English. The course will open about July 1 in Grenoble in the French Alps and from there proceed to Norway, covering a period of five weeks. This is the first course of its kind to be given by European geographers. It offers an unusual opportunity for American students to get training in the field under the direction of one who is probably the world's chief exponent of mountain geography, and at the same time get an insight into the working methods of some European universities. For further information address Derwent S. Whittlesey, Geological Museum, Cambridge, Mass.

Teachers frequently write the JOURNAL for suggestions for dramatizations with a geographic background. One such dramatization was recently staged at the Fox Meadow Elementary School, Scarsdale, N.Y. The theme centered about Byrd's life in the Antarctic. The school yard was converted into a Little America. A group of fourth grade children, dressed in Arctic dress, depicted life at Byrd's camp, his flight to the pole, the finding of Amundson's cairn, etc. The play was written by the children following their study of the Byrd Expedition. Perhaps this theme will suggest to teachers other current events that lend themselves to dramatization and geographic interpretation.

During the next five years Mexico will spend $39,000,000 on highway construction. The highway from Laredo to Mexico City will be completed. Quadalajara will be connected on the south with Toluca and on the north with Victoria. Pueblo will be joined to Oaxaco from which in turn one road will be traced to Tehuantepec and the Guatemalan frontier, and another one will be extended to Merida. Trace these on your map. What kind of a landscape do these projective highways traverse?

The Geography Division of the third biennial conference of the World Federation of Education Associations met at Geneva, Switzerland, August 2. Dr. Eric P. Jackson, Hillsdale, Michigan, who is studying this year at Grenoble, presided. Helen S. Evans, founder and President of the School World Friendship League, explained the aims, activities, and organization of this League. Dr. Jackson read a paper on the comparative methods of geography as an aid in the promotion of international understanding and good will. This theme was further developed by Dr. J. Russell Smith, Columbia University. It was resolved that the meeting stand on record as favoring an exchange of correspondence on geographic matters between schools in different parts of the world. The details for the carrying out of this plan were left to the President-elect, J. Russell Smith. It was also resolved that, "It is the earnest desire of the geographers present that the original plan of having geography as an integral section of the World Federation of Education Associations be carried out at the next meeting." This resolution was occasioned by the fact that geography had not been given a place as a separate section on the program, but had met as a division of Section 15 on elementary education. Alison Aitchison, State Teachers College, Cedar Falls, Iowa, and Harriet Carter, Teachers Training School, Pittsburgh, Pennsylvania, were the National Council delegates to this meeting. The next meeting of the Federation will be held at Denver.

Development of hydro-electric power in Canada has made rapid progress during the last decade. In 1929, 378,400 horse power was installed bringing the total installation for the Dominion, at the end of the year, to 5,727,600 horse power. The construction program now under way and to be completed within the next three years will add 1,600,000 horse power. However, this is only the initial installation. When the plants are completed an additional 1,500,000 horse power will be installed. Quebec leads in installations made in 1929, and in the work now under construction.

Canada now surpasses the United States in the production of newsprint. Out of the total production of the two countries in 1920 Canada produced only 27 per cent. Six years later the Canadian output exceeded that of the United States, and since then it has been increasing rapidly. It produced 60 per cent of the combined output of the two countries in 1928. Data now available indicate that Canada's share for 1929 will approximate two-thirds.

Work done by rivers may destroy or improve the harbor conditions of a river port. This has been illustrated strikingly by the Hai Ho at Tientsin, China. When heavy rains occur in the mountains the river carries down great quantities of silt thus choking the channel until the next flood waters arrive. As the channel is only about 300 feet wide at Tientsin, the navigable depth may be reduced to only 8 feet as it was during the period between 1927 and 1929. During this time access to Tientsin was by lighters. However, heavy rains of 1929 caused the river to clear the channel to a normal depth. Since then the action of tides and currents has brought the depth to 13 feet which allows coastal vessels to again dock in Tientsin.

The Annual Seminar in Mexico holds its fifth session in Mexico City, July 5-15. The Seminar presents an excellent opportunity to study the life and culture of the people of Mexico. The program includes lectures by leaders of Mexican life—educational, artistic, governmental. The seminar is planned as an objective study of the moving forces in Mexico. The Seminar is a cooperative and non-profit undertaking. All men and women who are interested in international relations, and particularly in the Seminar in Mexico, should address The Committee on Cultural Relations with Latin America, 112 East 19th Street, New York City.

In spite of domestic wars, poverty, and disorder we receive word frequently that China is making actual progress in modern development. China now has 52 radio stations that transmit military and commercial messages. The Ministry of Communication now has complete charge of all radio operation in China. All radio equipment is now on the ground ready to be installed in the new stations at Mukden and Shanghai. The first will handle the messages for the three Eastern Provinces, Europe and America. The Shanghai station will also communicate by way of San Francisco with other points in Europe and America.

In now appears that the phosphate deposits on Nauru and Ocean Islands in the Gilbert and Ellice Islands groups, are very extensive. It is estimated that about 400,000 tons may be exported annually from Ocean Island, and that the supply will last at least a century.

Accurate level lines have been run by the U. S. Geological survey to six of the high peaks in the eastern part of the United States. Mount Mitchell is probably the highest point east of the Mississippi River and has an altitude of 6,684 feet. Great Smoky Mountain National Park has three peaks that rival Mount Mitchell. These are Clingmans Dome, 6,642 feet; Mount Guyot, 6,621 feet; and Le Conte, 6,593.

GEOGRAPHICAL PUBLICATIONS

C. E. P. Brooks, Climate. **A Handbook for Business Men, Students and Teachers.** 199 pp. 3 figs. Ernest Benn, Ltd. London, 1929. 10/6

Dr. Brooks, the Director of the British Meteorological Office, and probably since Hann's death, the world's leading climatologist, has done a fine service in preparing this book. It is a summary of the chief climatic features of each of the major regions of the world. Tables give for selected stations a) the situation, including latitude and longitude, and height, b) the length of record, c) the mean temperature of each month and of the year, d) average rainfall for each month and for the year, e) daily range of temperature for January and July, f) average maximum and minimum temperature, g) extreme recorded maximum and minimum temperatures, h) relative humidity for January and July, i) cloudiness for January and July, j) number of days with snowfall, rainfall and thunder. These significant data are given for 208 widely distributed stations, and additional data are tabulated for various other stations. The text is largely a summary of the tables, with many supplementary remarks on interesting local pecularities, with something as to causes. The discussion proceeds from Great Britain, region by region over other parts of northern mid latitudes, thence southward, by climatic zones, to the south polar region. Bibliographies are given at the close of each section, and there is a good index.

Brook's "Climate" will be exceedingly useful to many teachers of geography. It does not supersede Kendrew's "Climate of the Continents," which discusses the causes of climatic conditions much more thoroly, but it gives very many more data, is more compact, and only about one-third as expensive.

Indiana University S. S. VISHER

Austin H. Clark. **Nature Narratives.** 140 pp. Williams and Wilkins Co., Baltimore, 1929. $1.00

The many boys and girls who are much interested in animals will obtain much pleasure from these very readable true accounts of some sixty strange kinds of birds, reptiles, mammals, fish, butterflies, worms, etc. As the author, a curator of the United States National Museum, is also widely known for his work on animal geography, these accounts emphasize the adaptations of these animals to this environment. Thus the readers of this little book also learn about various environments. The part these animals play in human affairs is also commonly mentioned. Hence "Nature Narratives" is a worth-while addition to a collection of supplementary readers for geography pupils.

S. S. VISHER

Indiana University